



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/654,740	09/04/2003	Mario A. Recio	DP-308368	5231
22851	7590	01/12/2005	EXAMINER	
DELPHI TECHNOLOGIES, INC. M/C 480-410-202 PO BOX 5052 TROY, MI 48007			ELLINGTON, ALANDRA	
			ART UNIT	PAPER NUMBER
			2855	

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

NA

Office Action Summary

Application No.

10/654,740

Applicant(s)

RECIO ET AL.

Examiner

Alandra Ellington

Art Unit

2855

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-8 and 10 is/are rejected.
- 7) ☒ Claim(s) 5, 9 and 11 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/2/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Shitanoki (4,789,342).
 - a. With respect to claim 1, Shitanoki discloses a position sensor, comprising a housing 16; a main gear 17 located within said housing 16; a ring shield 25 located within said housing 16, said ring shield 25 comprising a ring shield wall 25; a plate 24 connected to said ring shield wall 25; an axle 21 connected to said plate 24 in perpendicular relation thereto ({Figs. 2,3}); and an auxiliary gear 22,23 located within said housing 16, said auxiliary gear 22,23 being rotatably mounted to said axle 21, said main gear 17 being gearingly meshed with said auxiliary gear 22,23 ({Figs. 7(a)-7(e)}); wherein rotation of said main gear 17 causes rotation of said auxiliary gear 22,23, and wherein said auxiliary gear 22,23 is bearingly supported on said axle 21 (col. 4 lines 8-33).
 - b. With respect to claim 2, Shitanoki discloses the sensor of claim 1, wherein said axle 21 is disposed at an axial center of said ring shield 25 ({Fig. 2}); and wherein said auxiliary gear 22,23 is free of contact with respect to said ring shield 25 (col. 3 lines 21-28 {Figs. 2,3,7(a)}).

Art Unit: 2855

c. With respect to claim 6, Shitanoki discloses a position sensor, comprising a housing 16; a main gear 17 located within said housing 16; a ring shield 25 located within said housing 16, said ring shield 25 comprising a ring shield wall 25; a plate 24 connected to said ring shield wall 25; an axle 21 connected to said plate 24 in perpendicular relation thereto ({Figs. 2,3}); an auxiliary gear 22,23 located within said housing 16, said auxiliary gear 22,23 being rotatably mounted to said axle 21, said main gear 17 being gearingly meshed with said auxiliary gear 22,23 ({Figs. 7(a)-7(e)}); wherein rotation of said main gear 17 causes rotation of said auxiliary gear 22,23, wherein said auxiliary gear 22,23 is bearingly supported on said axle 21 (col. 4 lines 8-33); and wherein said auxiliary gear 22,23 is free of contact with respect to said ring shield 25 (col. 3 lines 21-28 {Figs. 2,3,7(a)}).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made..

4. Claims 3-4, 7-8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shitanoki (4,789,342) in view of Torii et al (5,823,905)(hereinafter Torii).

- a. With respect to claim 3, Shitanoki discloses the claimed invention except for the ring shield wall comprising a low rise portion adjacent the main gear and a high rise portion distally disposed in relation to the main gear wherein the plate is connected to said high rise portion of the ring shield wall. Torii teaches a position sensor 30 with a ring shield 56 with a low rise portion 66,68 adjacent a gear 44,46,54 and a high rise portion 62,66 distally disposed in relation to the gear 44,45,54 wherein the plate 62 is connected to the high rise portion 62,66 of the ring shield wall (col. 6 lines 29-37,59-67, col. 7 lines 1-61 {Figs. 1,4-8,10A-10C}). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Shitanoki with the teachings of Torii to include a ring shield with a low rise portion adjacent a gear and a high rise portion distally disposed in relation to the gear wherein the plate is connected to the high rise portion of the ring shield wall for the purpose of supporting and protecting the gears during operation (see Torii, col. 6 lines 29-37,59-67, col. 7 lines 1-61 {Figs. 1,4-8,10A-10C}).
- b. With respect to claim 4, Torii teaches high and low rise portions 62,66,68 and wherein the plate 62 is truncated by a truncation edge 66, a wall edge coinciding with the truncation edge 66 ({Figs. 1,4-8,10A-10C}).
- c. With respect to claim 7, Torii teaches a position sensor 30 with a ring shield 56 with a low rise portion 66,68 adjacent a gear 44,46,54 and a high rise portion 62,66 distally disposed in relation to the gear 44,45,54 wherein the plate 62 is connected to the high rise portion 62,66 of the ring shield wall, the plate 62

is truncated by a truncation edge 66, and a wall edge coinciding with the truncation edge 66 (col. 6 lines 29-37, 59-67, col. 7 lines 1-61 {Figs. 1, 4-8, 10A-10C}). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Shitanoki with the teachings of Torii to include a ring shield with a low rise portion adjacent a gear and a high rise portion distally disposed in relation to the gear wherein the plate is connected to the high rise portion of the ring shield wall, the plate is truncated by a truncation edge and a wall edge coinciding with the truncation edge for the purpose of supporting and protecting the gears during operation (see Torii, col. 6 lines 29-37, 59-67, col. 7 lines 1-61 {Figs. 1, 4-8, 10A-10C}).

d. With respect to claim 8, Shitanoki discloses the axle 21 disposed at an axial center of said ring shield 25 ({Fig. 2}).

e. With respect to claim 10, Shitanoki discloses a position sensor with a housing 16, a main gear 17 located within the housing 16, a ring shield 25 located within the housing 16, a plate 24 connected to said ring shield wall 25, an axle 21 connected to said plate 24 in perpendicular relation thereto ({Figs. 2, 3}), an auxiliary gear 22, 23 located within said housing 16, said auxiliary gear 22, 23 being rotatably mounted to said axle 21, said main gear 17 being gearingly meshed with said auxiliary gear 22, 23 ({Figs. 7(a)-7(e)}), wherein rotation of said main gear 17 causes rotation of said auxiliary gear 22, 23, wherein said auxiliary gear 22, 23 is bearingly supported on said axle 21 (col. 4 lines 8-33), and wherein said auxiliary gear 22, 23 is free of contact with respect to said ring shield 25 (col.

3 lines 21-28 {Figs. 2,3,7(a)}). However, Shitanoki does not teach a ring shield having a low rise portion adjacent a main gear, a high rise portion distally disposed in relation to the main gear, and a plate truncated by a truncated edge, a wall edge coinciding with the truncation edge.

Torii teaches a position sensor 30 with a ring shield 56 with a low rise portion 66,68 adjacent a gear 44,46,54 and a high rise portion 62,66 distally disposed in relation to the gear 44,45,54 wherein the plate 62 is connected to the high rise portion 62,66 of the ring shield wall, the plate 62 is truncated by a truncation edge 66, and a wall edge coinciding with the truncation edge 66 (col. 6 lines 29-37,59-67, col. 7 lines 1-61 {Figs. 1,4-8,10A-10C}).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Shitanoki with the teachings of Torii to include a ring shield with a low rise portion adjacent a gear and a high rise portion distally disposed in relation to the gear wherein the plate is connected to the high rise portion of the ring shield wall, the plate is truncated by a truncation edge and a wall edge coinciding with the truncation edge for the purpose of supporting and protecting the gears during operation (see Torii, col. 6 lines 29-37,59-67, col. 7 lines 1-61 {Figs. 1,4-8,10A-10C}).

Allowable Subject Matter

5. Claims 5, 9 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: The reasons for the indication of allowable subject matter are based on the inclusion of *a second annular magnet located within an auxiliary gear, and sensing electronics within a housing detecting magnetic field rotation of a first and second magnets in response to an induced rotation of the main gear.*


Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(4,342,279) (6,832,661) (5,808,250) (5,243,188) (US 2002/0059838)

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alandra Ellington whose telephone number is (571) 272-2178. The examiner can normally be reached on Monday - Friday, 7:30am - 4:00pm.

9. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


EDWARD LEFKOWITZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Art Unit: 2855

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alandra Ellington
Art Unit 2855

A handwritten signature in black ink, consisting of a large, stylized 'C' shape with a small 'a' inside, followed by a horizontal line.

ane